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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/472,150	12/27/1999	YUTAKA HASEGAWA	04173.0403	8389

22852 7590 02/24/2003

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EXAMINER

LEUNG, JENNIFER A

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 02/24/2003

13

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/472,150

Applicant(s)

HASEGAWA ET AL.

Examiner

Jennifer A. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 1-14 and 22-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-21, 26 and 27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 13 December 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's Amendment filed December 12, 2002 has been received and carefully considered. The submitted changes to the Specification and Drawings are acceptable. Claims 1-27 remain active. Claims 1-14 and 22-25 are withdrawn from consideration, being drawn to a non-elected invention. Claims 26-27 have been added.

Claim Objections

2. Claims 19 and 20 are objected to because of the following informalities: -- material -- should be inserted after "at least one" (line 2) for clarity in the Markush clause. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 15-21 and 26-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 15, it is unclear as to the structural limitation the applicants are attempting to recite by, "installed through a gap" (line 4). Furthermore, it is unclear as to the structural relationship of "a treatment object" and "a reaction medium" (line 5) to the other elements of the apparatus.

With respect to claim 26, the language of the claim is directed to a method limitation which renders the claim vague and indefinite as it is unclear as to what structural elements the applicants are attempting to recite, since "the pressure holding fluid" is not an element of the apparatus.

With respect to claim 27, it is unclear as to the structural limitation the applicants are attempting to recite by, "... connected to the pressure reactor through a second connector." (line 4) since it is unclear as to which previously recited structural element the connection refers. The Examiner has assumed that the applicants intended to recite, "the second reservoir connected to the pressure reactor through a second connector", as supported by the drawings and page 8, lines 23+ in the specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over McBrayer, Jr. et al. (U.S. 5,552,039).

With respect to claim 15, McBrayer, Jr. et al. disclose a pressure treatment apparatus **10** comprising:

- A pressure reactor **12**;
- An exterior vessel **22** in which the pressure reactor **12** is installed through a gap **24**, wherein the exterior vessel **22** is isolated from a treatment object and a reaction medium [fed to pressure reactor **12**];
- Means for feeding a treatment object **30** or **230** into the pressure reactor **12**;
- Means for feeding a reaction medium **241** into the pressure reactor **12** (column 13, lines 40-51); and
- Means for controlling pressure **38, 40, 42, 43, 44, 46, 48** (column 9, lines 25-29) within the gap **24** between the exterior vessel **22** and the pressure reactor **12** to be higher than that within the pressure reactor **12** (column 4, lines 48-50).

In view of the newly added limitations, McBrayer, Jr. et al. disclose that the apparatus relates to the treating of aqueous waste liquids in particular (column 4, lines 12-14). Although McBrayer, Jr. et al. does not expressly state the use of a treatment object including a solid waste, the reference further discloses that “disadvantages of the conventional reactors include... increased plugging potential due to small diameters” (column 7, lines 22-29), and “The present invention allows for the construction of relatively large diameter reactors... [providing the consequential advantage of] reduced plugging potential.” (column 7, lines 36-45). In particular, McBrayer, Jr.

et al. cites an example of processing wastes containing dissolved inorganic solids (e.g. NaCl salt) which come out of solution as solid particles in supercritical water conditions. Due to the relatively large reaction chamber diameter, plugging potential in the reactor is reduced and it is possible to treat wastes which otherwise might results in unacceptably low operating utility due to plugging in the reactor. (column 8, lines 13-56). The apparatus of McBrayer, Jr. et al. is admittedly capable of processing a solid material, and hence capable of processing a treatment object including a solid waste. In any event, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

With respect to claim 16, McBrayer, Jr. et al. further disclose that the means for controlling pressure within a gap **24** comprises a fluid feeder for feeding a pressure holding fluid into the gap **24** and a pressure controller **43** for controlling pressure of the pressure holding fluid (column 4, lines 48-67; column 9, lines 25-29; column 11, lines 14-34).

With respect to claim 17, McBrayer, Jr. et al. further disclose a means for controlling temperature **470**, **570**, **670** of the exterior vessel **22** to be lower than that of the pressure reactor **12** (column 14, line 24 to column 15, line 9).

With respect to claim 18, McBrayer, Jr. et al. further disclose that the exterior vessel **22** comprises a trunk portion **22** and a cover portion **28** that opens and shuts, and the pressure reactor **12** is fixed to be removable to the exterior vessel **22** (column 5, lines 14-16; column 9, lines 5-10).

With respect to claim 19, McBrayer, Jr. et al. further disclose that the pressure reactor **12** is formed, for example, of at least one of stainless steel or noble metal (ie. Ni, Zr, Ti, Au, Pt) (column 9, lines 52-63; column 10, lines 8-41). McBrayer, Jr. et al. also cite that the exact composition of the reaction chamber wall will depend on the corrosive conditions experienced with a particular waste feed.

With respect to claim 20, McBrayer, Jr. et al. further disclose that an inner surface **14** of the pressure reactor **12** is lined, for example, with at least one of stainless steel or noble metal (ie. Ni, Zr, Ti, Au, Pt) (column 9, lines 52-63; column 10, lines 8-41). McBrayer, Jr. et al. also cite that the exact composition of the reaction chamber lining will depend on the corrosive conditions experienced with a particular waste feed.

With respect to claim 21, McBrayer, Jr. et al. further disclose that an inner surface **14** of the pressure reactor **12** is, for example, coated with ceramic material (column 10, lines 8-41). McBrayer, Jr. et al. also cite that the exact composition of the reaction chamber coating will depend on the corrosive conditions experience with a particular waste feed.

5. Claim 26 is rejected under 35 U.S.C. 102(b) as being anticipated by McBrayer, Jr. et al. (U.S. 5,552,039) in view of Suzuki et al. (JP 09-085075).

McBrayer, Jr. et al. further disclose the pressure holding fluid may comprise an inert fluid (i.e. nitrogen, helium, argon) which does not react with the elements present in the annulus under operating conditions (column 11, lines 30-34), but are silent as to whether the pressure holding fluid may comprise specifically water. In any event, the apparatus of McBrayer, Jr. et al. structurally meets the claim, since the pressure holding fluid is not an element of the apparatus but a mere recitation of intended use. Furthermore, the use of a fluid such as water as the

pressure holding fluid is known in the art, as evidenced by Suzuki et al. In particular, Suzuki et al. teach a high pressure reaction apparatus comprising a high-pressure reactor **2** and an exterior vessel **1** in which the high-pressure reactor **2** is installed, wherein a means for controlling pressure within a gap **B** between the exterior vessel **1** and the high-pressure reactor **2** is provided (FIG.; Abstract). Suzuki et al. further teach that the means may comprise a pressure medium, namely a gas or liquid such as water (Section [0015]). Therefore, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to select water for the pressure holding fluid in the apparatus of McBrayer, Jr. et al., on the basis of suitability for the intended use and absent showing any unexpected results.

6. Claim 27 is rejected under 35 U.S.C. 102(b) as being anticipated by McBrayer, Jr. et al. (U.S. 5,552,039) in view of Matovich (U.S. 4,199,545).

McBrayer, Jr. et al. are silent as to the means **30** or **230** comprising a first solid reservoir, a second reservoir connected to the first solid reservoir through a first connecting pipe, and [the second reservoir] connected to the pressure reactor **12** through a second connector.

Matovich (FIG. 8A, 8B, 9; column 11, line 63 to column 12, line 33) teaches a solid reactant feed system **238** for use in combination with a reactor (defined by inlet assembly **200/200a**, electrode assembly **300**, main assembly **400**, and post-reaction treatment assembly **500**; column 6, lines 12-17). The system comprises a first solid reservoir (supply bin **240**), and a second reservoir (hopper **244**) connected to the first solid reservoir **240** through a first connecting pipe (fine product output **243**), and the second reservoir **244** connected to the reactor through a second connector (housing **246**, outlet **250**).

It would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to provide the solid reactant feed system of Matovich for the means for feeding a treatment object including a solid waste in the apparatus of McBrayer, Jr. et al. because the solid reactant feed system provides a means for introducing solid reactants into the reactor while being sealed from the atmosphere, as taught by Matovich (column 12, lines 27-31).

Response to Arguments

7. Applicant's arguments with respect to claims 15-21 and 26-27 have been considered but are moot in view of the new ground(s) of rejection.

8. Please note that in the Office Action dated September 13, 2003, the Examiner inadvertently referred the Japanese Patent 09-085075 as the "Akira et al." reference, when the reference should have been properly referred to as the "Suzuki et al." reference.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Grosse and Allington et al. are provided to illustrate the state of the art. McBrayer, Jr. et al. '606 is provided to illustrate a relevant invention of McBrayer, Jr. et al. '039.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a):

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

* * *

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is 703-305-4951. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Jennifer A. Leung *JAL*
February 19, 2003

Hien Tran
HIEN TRAN
PRIMARY EXAMINER